

## Lessons learned about an EWA since the last Phase 2 report

1. The present game is much more sophisticated than Game 0
2. Have developed methods to better quantify benefits  
Although still based on salvage
3. EWA with Stage 1 ,year one, minimal facilities was able to make it through two dry years and one wet year and come out whole (not in debt) with \$40M in assets. It was tight.
4. With the assets assumed at the end of Stage 1, \$30M allowed the EWA to go through 5 years and come out whole.
5. As the game became more sophisticated more opportunities for multiple benefits came to light. Such as upstream benefits to instream flows (ERP and others)and temperature below reservoirs, changes in QWEST etc.
6. Credit approach tended to become more complicated than gal/gal accounting approach. Needed to make exceptions to credits, and was difficult to forecast what credits should be under different hydrologic conditions.
7. SOD and near pump storage are a premium in allowing the EWA to work under a flexible approach. Storage closest to the pumps allows the most flexibility.
8. Use of groundwater is limited for the EWA given the low recharge and extraction rates. EWA requires large volumes of water in a relative short periods of time. Groundwater is used as collateral with the water users for debt incurred by the EWA to the water users.
9. The governance of an EWA has to be set up so it can make quick decisions on purchases, movement of water and or/storage options.
10. Need to factor in risk of being able to purchase and deliver water when called by EWA actions.
11. Very important to establish the right sharing formula for new facilities. Given the right hydrological circumstances giving the Projects unencumbered control over large increases in export capacity creates instability in the game and the EWA could be bankrupted, or fish protections compromised.
12. Water quality was improved in many cases as a result of EWA actions for fish.

13. Will test a Game where in-Delta "B2" will be flexed and the benefits shared.
14. With fewer assets in the EWA at Stage 1, year 1, the fisheries people more comfortable with prescriptive standards than an EWA.
- The gaming process resulted in various conclusions on the part of the group.
15. A simple credit approach did not work as well as water account approach in effectively balancing benefits to water quality, water supply, and the environment. Gallon-for-gallon water account approach provided more opportunities, more synergies, and more flexibility. Both approaches offer improvements over existing prescriptive standards that have minimal flexibility to adjust to specific circumstances and needs.
16. There are many possible strategies for applying an EWA. The best strategy would likely have a capability of adjusting to the specific circumstances. Factors that vary include fish distribution and abundance, environmental factors, etc. These factors would change circumstances and vary need for protection.
17. There are many options or alternatives for performing functions like In-Delta storage. All have different degrees of flexibility, feasibility, and implementation constraints.
18. The best way to meet program objectives using the EWA may be to work out water quality, water supply, and environmental objectives concomitantly.
19. There are opportunities for synergies that would provide long-term benefits to water quality, water supply, and the environment. Each can borrow or count on the resources of the other to help meet objectives within a highly variable and unpredictable system.
20. Opportunities are limited because the water supply is limited. Resources are gained by shifting water supply among years through new storage that captures "surplus" water in wetter years and periods, and distribution facilities that shift transfer water among facilities. Water supply for some users is also gained at the expense of other users through sharing and reimbursement.
21. Because the water supply within and among years is so stochastic (unpredictable and variable), an EWA approach provides a much needed buffering system not only for protection of the environment, but also for water quality and water supply. The EWA provides the collateral to take on risk. In the end, costs are lower than anticipated, because in some years things work out – rain falls. This ability to take on risk benefits everyone.
22. Sharing water supply generated by new facilities and the risks associated with water supply, along with a flexible management approach like EWA, should

provide for mutual incentives for long-term benefits for the environment, water quality, and water supply in the future. Flexibility and “extra” resources and facilities will hopefully minimize short-term risks.

Delta island storage provided major benefits to EWA. A direct connection from the islands to Clifton Court Forebay added flexibility for storage and alternative diversion points.

- E/I variances adder major benefits to the EWA especially during dry periods.
- San Luis low priority storage with its high input/out capacity and space availability most of the time for EWA added major benefits.
- The ability to purchase water, whether or not water was actually purchased, allowed the EWA to modify export operations with confidence of payback. In drier years, access to markets provided significant amounts of water for EWA.
- Groundwater storage had clear benefits in dry years; however, output capacity continues to constrain value.
- Efficiency benefits were usable to EWA, but need more at a cheaper cost to have major benefit.
- The synergies of different actions were very beneficial to EWA. EWA had a network of infrastructure/rights which added value greater than the sum of the individual parts. Ability to shift water, focus timing of exports using differentials in environmental sensitivity by time and place was very valuable to EWA.